



2004-2005 SANTA CLARA COUNTY CIVIL GRAND JURY REPORT

SANTA CLARA COUNTY ELECTRONIC HEALTHCARE RECORDS – THE TIME IS NOW

Summary

During visits to Department of Correction (DOC) and Probation Department detention facilities and to Santa Clara Valley Health and Hospital System (SCVHHS) care facilities, the 2004-2005 Santa Clara County Civil Grand Jury (Grand Jury) heard inconsistent statements about the status and implementation of Electronic Health Record (EHR) systems. As a result of these discrepancies, the Grand Jury initiated an inquiry to ascertain the accurate status of EHR planning and implementation in Santa Clara County (County). This inquiry included interviews with leaders of other large healthcare organizations within the County to provide background information about local “best practices”. The inquiry also included interviews with relevant County officials and with personnel in DOC and SCVHHS. Finally, the inquiry included a review of federal policy and published literature in the area of EHR justification, deployment, and evaluation.

The Grand Jury is encouraged by the potential of EHR systems to improve patient care, reduce errors, provide for better interoperability among healthcare enterprises, and enable a more objective assessment of costs, utilization, and outcomes to improve the cost effectiveness of County healthcare organizations. At the same time, the Grand Jury has serious concerns related to a lack of effective and consistent leadership for this important undertaking by County management.

The Grand Jury has made five findings summarized here and explained in more detail in the *Findings and Recommendations* section of this report:

- Among the major public health care providers in the County, SCVHHS stands alone in lacking top management commitment to move aggressively toward implementing an integrated EHR system;
- Although the County healthcare system is in an excellent position to take a leadership role in working toward the development of interoperable EHR systems among County and regional providers, the Executive Director of SCVHHS has stated an explicit unwillingness and/or an inability to take on such a leadership role;
- Despite the reservations of the Executive Director of SCVHHS, a number of efforts are currently underway to implement partial EHR systems, several without the knowledge or interest of key members of the senior management team at SCVHHS. The projects are largely uncoordinated, and the Grand Jury could find no documented long-range vision or integrated plan for these projects;

- The current “incremental” approach being taken by the Chief Information Officer (CIO) of SCVHHS to develop SCVHHS EHR technology is ineffective, costly, and slow. This approach appears to be the result of limited management support, limited resources, and correspondingly limited goals of the CIO; and
- Despite its overall criticism directed toward SCVHHS senior management, the Grand Jury would like to acknowledge that there are several noteworthy efforts to develop EHR components at SCVHHS.

Background

The following sections summarize briefly the rationale and benefits of implementing EHRs. It should be noted that two terms are currently in common use: Electronic Health Record (EHR) and Electronic Medical Record (EMR). The term EHR is gaining preference to emphasize the word “health” in the acronym. Ultimately, the enterprise of medicine encompasses the achievement and maintenance of good health through education, prevention, and good living habits, not just the diagnostic, curative, and care aspects once disease has set in. This report uses the term EHR.

SOME HISTORY ABOUT MEDICAL RECORDS

With the advent of group medical practice introduced in America around 1900 by the Mayo brothers, came the need for and routine use of medical records as a memory device to help doctors recall details for individual patients and as a coordination tool among diagnostic, therapeutic, and other care specialists. By the middle of the 20th century, as medical technology was advancing at an ever greater pace, it became clear that the mounting volume of paper in patient records was an inefficient way to handle such information. To combat inconsistencies in the content and structure of medical record entries written by different doctors, methodologies were designed to contain, in predictable formats, information about Subjective observations, Objective observations, Assessments, and Plans for the patient (now called SOAP notes). Even assuming diligent efforts to keep paper records up-to-date and well structured, the records can only be in one place at a time, handwriting is often hard to read, and finding specific information among the papers is labor intensive and time consuming.

As computer and communications technologies became commonplace, the need for electronic health records has been recognized at the highest levels of the medical profession for more than 15 years. EHR helps to track mobile patients, support multi-site or specialty unit care, improve the consistency of care, reduce errors, more readily allow physicians to do evidence-based practice, expedite payments, measure and contain costs, assist medical research, and provide objective administrative utilization and outcomes data. In 1991 and again in 1997, the Institute of Medicine (IOM) of the National Academy of Sciences issued a report calling for the wide deployment of EHRs.

THE CASE FOR THE MODERN EHR

The IOM reports were based on a close examination of the literature evaluating many EHR implementation projects over the years – some successful and others not. The argument in favor of EHRs is so persuasive that in July 2004, the U.S. Department of

Health and Human Services appointed a National Coordinator for Health Information Technology to promote the deployment of EHRs nationally and his efforts have recently been promoted actively by the President and Congressional leaders.

Many hospitals and clinics already have EHRs deployed or are actively in the process of doing so. The following is a short list of notable examples, including El Camino Hospital (a pioneer site since 1972), Palo Alto Medical Foundation and Sutter Healthcare, the entire federal Veterans Administration Healthcare System, the Kaiser Permanente System, Partners HealthCare in Boston, Massachusetts General Hospital, Columbia Presbyterian Medical Center in NY, Intermountain Health Care, the Vanderbilt Medical Center, On Lok Healthcare in San Francisco, Indiana University Medical Group and Regenstrief Institute, University of California at Los Angeles Medical Center, University of California at Davis Medical Center, Mayo Clinics (at Rochester MN, Scottsdale AZ, and Jacksonville FL), the entire National Health System in Great Britain, and many more.

Many information technology vendors offer commercial components and systems that support easy record entry and access, physician order entry, security and remote access, administrative services and billing, integration of diverse inpatient and outpatient services, interoperation, evidence-based medicine resources, and patient information access and education. Planning, installing and deploying an EHR is quite complex and has to be managed professionally. The technology has matured to the point where doctors, nurses, patients, and administrators derive benefits unachievable by staying with current manual records systems. A recent article in the journal *Health Affairs* estimated that \$78 billion a year could be saved in the U.S. by moving to electronic health records in a network with open communication standards. That return on investment is driving the business managers of many modern healthcare enterprises to lead the path to change.

PRIVACY AND SECURITY ISSUES FOR EHRS

It is sometimes argued that privacy will suffer by bringing health records on-line. As noted in a National Research Council (NRC) report, "For the Record: Protecting Electronic Health Information," (1997) the problem is real but so are the solutions:

"When you visit the doctor, information about you may be recorded in an office computer. Your tests may be sent to a laboratory or consulting physician. Relevant information may be transmitted to your health insurer or pharmacy. Your data may be collected by the state government or by an organization that accredits health care or studies medical costs. By making information more readily available to those who need it, greater use of computerized health information can help improve the quality of health care and reduce its costs. Yet health care organizations must find ways to ensure that electronic health information is not improperly divulged...."

The solutions to protect privacy and security of healthcare information have to address policies and practices at technical, organizational, and national levels. These are now embodied in an evolving set of regulations from the federal Department of Health and Human Services (DHHS) under the Health Insurance Portability and Accountability Act (HIPAA) passed by Congress in 1996. Final HIPAA rules have been issued to cover:

- Electronic health care transactions;
- Health information privacy;
- Unique identifier for employers; and
- Security requirements.

Other rules will be forthcoming for areas such as unique identifiers for providers and health plans, as well as full enforcement procedures. The HIPAA rules may be thought of as implementing prudent electronic security procedures similar to those in use for banking, securities, electronic commerce, and government database systems, plus special rules for informed consent from patients about keeping their health records on-line. As pointed out in the 1997 NRC report, healthcare information already flows to computerized payer, pharmaceutical, and self-insuring employer databases, whether the records are initially in paper or electronic form. The additional protection of the HIPAA rules, fully consistent with the implementation of modern, prudently managed EHRs, actually increases patient privacy protection – even though no protection can be absolute. Persons or organizations with access to healthcare information may still intentionally or accidentally divulge that information, for which the only current remedy is legal action.

Discussion

The Grand Jury conducted its investigation of EHR implementation and management in County healthcare facilities in several stages, including:

- Studying the state of EHR implementation in nearby non-County healthcare settings;
- Studying the state of EHR implementation in various County healthcare settings; and
- Evaluating County management attitudes and approaches to EHR implementation.

EHRs in Non-County Healthcare Settings

In order to assess the status of EHR development and use at non-County healthcare providers, the Grand Jury visited the Chief Information Officers and/or Chief Medical Information Officers at El Camino Hospital and Palo Alto Medical Foundation. All of these groups are fully committed to EHR technology and are aggressively pursuing wider and more capable rollouts.

El Camino Hospital

El Camino Hospital (ECH) is a 395-bed, not-for-profit hospital in Mountain View, operated as a special district within the County. ECH handles over 500,000 outpatient visits per year, about 21,000 inpatient discharges per year, and has a full-time hospital staff of approximately 820. ECH implemented an EHR (referred to as TDS) in 1972, and developed the first Computerized Physician Order Entry (CPOE) system to avoid the errors and routing difficulties of handwritten orders. By 1998, this system demonstrated a 55% reduction in errors for inpatient orders. ECH went through a period of management and financial crisis during the mid-1990s, when the continued existence of the ECH

Special District was at stake. During this period, it became evident that substantial new investment in construction would be necessary to upgrade buildings to be earthquake safe and that the soaring costs of running a healthcare enterprise placed a burden on the District. Another consequence of this turmoil was a decline in investments in medical technologies, including information technology (IT). The crisis was ultimately resolved. By 2000, a new operational management team took over. With board and voter approval, 8% of revenues in new technology were committed to bring ECH back to the state of the art.

The management of Information Technology (IT) systems at ECH is focused in a CIO who reports to the Chief Executive Officer (CEO) and works in close collaboration with a committee of clinical opinion leaders who ensure that IT systems are selected and configured to meet provider needs. The outdated TDS EHR system will be upgraded to the newest technology by late 2005. ECH has not moved entirely from the paper record as its official legal record. Since ECH serves a diverse community, it issues summaries and orders in paper form upon a patient's discharge. California law permits providers to use paper-only records, combined paper and electronic records, or electronic-only records as their official legal records.

ECH is continuing to invest in other IT and process re-engineering efforts to gain efficiency by reducing the number of steps involved in routine hospital procedures. For example, ECH has demonstrated that requests for intravenous bag replacement can be reduced from a seven-step "page/reply" process to a two-step direct access process. As another example, with wireless EHR technologies, the entry of early-morning inpatient vital signs into the health record has been speeded up significantly – from about 69% complete to 100% complete by 9:00 AM. The ECH CIO states that they have demonstrated a significant reduction in errors related to patient care – from 6.4 errors per 1000 patient days in 2000 to 3.8 errors per 1000 patient days in 2004, where the industry average is 10-15 errors per 1000 patient days.

Palo Alto Medical Foundation

The Palo Alto division of the Palo Alto Medical Foundation (PAMF) employs about 300 physicians at five clinic sites. PAMF uses surrounding hospitals for patients requiring inpatient care, but handles about 800,000 outpatient visits per year itself. PAMF is composed of three health care divisions with about 650 physicians in multi-specialty group practices throughout the south Bay Area region, and handles about 1.5 million outpatient visits per year. In turn, PAMF is an affiliate of nonprofit Sutter Health, which operates 27 hospitals in California, has about 5,000 affiliated physicians, and has an annual budget of about \$6 billion. PAMF began its first pilot system in its Los Altos clinic in 1999. A decision was made one year later to expand the technology in all its clinics. The initial rollout to 300 physicians went in stages, including tools for patient review, messaging, and medication management by 2001, and additional patient charting, physician ordering, and charge-coding tools by 2002. The PAMF system integrates off-the-shelf systems for patient registration, scheduling, billing, laboratory information, radiology, pathology, electrocardiogram, and transcription with an interface engine based on the commercial EpicCare EHR using an interface engine. Another key element of the PAMF EHR system is its web-based patient interface, offering secure patient-specific medical information (e.g., health issues summary, medications, allergies, immunization history and reminders,

laboratory test or radiology results, appointment scheduling, prescription renewals, and doctor-patient communication), patient education information, drug information, insurance and billing, and personal demographic information. The PAMF Chief Medical Information Officer conducted an evaluation study and, in May, 2005, had over 40,000 of its patients enrolled in the PAMFOnline service with more than 90% of the patients satisfied or very satisfied. The system has demonstrated a higher physician compliance with flu vaccine reminders – now notifying 80-90% of patients.

The parent Sutter Health system has made a commitment to deploy the Epic-based EHR system network-wide in the next two years, serving more than 5,000 physicians, and being installed in all 27 hospitals and all the system's outpatient clinics at a cost of about \$154 million. The President and CEO of Sutter Health sees the benefit in "raising the bar on patient safety and satisfaction by eliminating inefficient procedures and providing better support systems for both the physician and the patient." The system will "fundamentally reduce costs, eliminate the possibility of duplicative procedures or tests, reduce medical errors, and ensure true coordination of care between physicians and patients."

Kaiser Permanente

The Grand Jury also attempted to meet with leadership at Kaiser Permanente (KP), but KP declined the invitation. Instead, KP referred the Grand Jury to definitive on-line information about their EHR plans. According to the Associate Executive Director of The Permanente Federation of Kaiser Permanente (the national organization of the Permanente Medical Groups), in testimony before the Health Subcommittee of the U.S. House Ways and Means Committee on June 17, 2004, KP is a healthcare enterprise that overall employs 12,000 physicians and 130,000 support workers, runs 30 hospitals and hundreds of clinics, and serves more than 8 million people covered under the KP Health Maintenance Organization (HMO) plan in nine states and the District of Columbia. The KP commitment to EHRs is substantial. Following a successful demonstration project in the late 1990s, in which the EpicCare system was rolled out in Kaiser's Pacific Northwest region, it was decided by Kaiser's top management to deploy the Epic system enterprise-wide over the next decade. Again, according to the Associate Executive Director, Kaiser has mounted a

“...\$3 billion effort to put in place, operate and maintain a comprehensive health care information system throughout Kaiser Permanente....

...in order to improve the care that physicians and other clinicians provide, they need better and more accessible information. They need better information on the patients they see, at the time they see them. They need up-to-date information about clinical issues when they make medical decisions... if we are to truly assess the quality of care, it is essential to have detailed, automated information about the interactions between the health care team and the people for whom they are responsible. All of this requires new ways of collecting, storing and retrieving information....

...we decided one year ago that software developed by Epic Systems... had evolved to the point that it could handle our size and complexity... we saw them as a strategic imperative. We believed that if we were going to make a

major leap in terms of quality improvement, service, patient safety, care coordination, efficiency, effectiveness, and job satisfaction, we needed to take the risk. While we have developed some components of the system ourselves, and others come from an array of vendors, the core of the system we are implementing is from Epic Systems. Similar Epic software has been implemented in many of the nation's largest health care systems....”

EHRs IN COUNTY HEALTHCARE SETTINGS

In order to assess the status of EHR implementation in County healthcare settings, it was necessary for the Grand Jury to look into a number of different organizations. This took considerable effort because these organizations work together to only a limited extent, and no single person seems to know the overview picture. Even at this writing, it is not clear that the Grand Jury has found all EHR-related efforts in the County healthcare system. The organizations that are relevant in the discussion include SCVHHS inpatient and outpatient facilities, the Information Services Department (ISD) of SCVHHS, the SCVHHS Custody Health Service, SCVHHS senior management, the County CIO, the County Information Technology Executive Committee, adult detention facilities under the Department of Correction (DOC), juvenile detention facilities under the Probation Department, and the Children’s Shelter under the Social Services Agency (SSA). There is no shared vision for EHRs in the County and there seems to be little to no coordination among organizational stakeholders in terms of implementation.

The managerial confusion confronting the Grand Jury started with a response to a question in an initial Grand Jury orientation session in July 2004, about “whether and when SCVHHS would be implementing an EHR?” The SCVHHS CFO responded that “no EHR system was under consideration by SCVHHS.” Within weeks, while touring the Main Jail, the Elmwood Facility, and Juvenile Hall, the Grand Jury was told that “custody healthcare providers were anxiously awaiting rollout of a new EHR system in the coming months.” During a tour of the Valley Medical Center (VMC), the Executive Director said, “an EHR was likely in about five years.” Finally, during an interview with the SCVHHS CIO in October 2004, the Grand Jury was shown an implementation of an evolving EHR system for VMC, based on a Board of Supervisors decision to approve an outside vendor contract, six years prior, in 1998. Even more disturbing, was that the SCVHHS CIO was unaware of EHR efforts for the DOC, the Probation Department, or SSA.

Part of the reason for such inconsistent management positions on this topic may be due to differing definitions of what is meant by EHR, even though the statements noted were quite categorical. In summary, the Grand Jury observed the following:

- Some individual organizations within the County responsible for aspects of healthcare do recognize the need, sometimes urgent, for an EHR to facilitate their work and are attempting to move forward;
- There seems to be no management entity from the Santa Clara County Board of Supervisors (BOS) downward that knows or is directing what is being done to implement County EHRs; and

- The County seems headed for the most inefficient, costly, and failure-prone approach possible by doing nothing to coordinate efforts which encourage local stakeholders and organizations with an immediate need to implement their own idiosyncratic systems.

The Grand Jury asks, “Why do we not have more centralized and professional County leadership working on this problem to ensure a successful and cost-effective system that meets the requirements of stakeholders, incorporates best practice and technologies, interoperates among constituent inpatient and ambulatory services, and is sensitive to caregiver, administration, and patient needs?”

SCVHHS Hospital and Clinics

SCVHHS operates a 524-bed hospital and eight outpatient clinics, which account for about 117,000 inpatient days per year, an average daily patient census of about 320, and about 632,000 outpatient visits per year. SCVHHS has used Siemens Medical Solutions as its vendor for administrative software since 1978, having installed a Shared Medical Systems (SMS, now part of Siemens) financial management system for patient billing, accounts receivable and general ledger. In 1985, SCVHHS installed the Siemens/SMS ACTION system for patient registration, care orders, charging, and medical record indexing. In 1999, with BOS approval, SCVHHS entered a nine-year, \$34 million agreement with Siemens/SMS to provide information-processing services. In the words of SCVHHS management, these services are aimed at “electronically integrating information for all healthcare providers, administrators, and payer/regulatory agencies”. SCVHHS management went on to say, “This will allow all defined users a complete view of patient health care information throughout the entire Health and Hospital System”. However, based upon the work performed to date and SCVHHS senior management discussions, their version of “complete view” appears to be inconsistent with the definitions, policies and practices typical of local and regional healthcare system providers and the industry in general.

Within the SCVHHS inpatient and outpatient settings, considerable progress toward an EHR has already been made. The approach is one of integrating diverse departmental information resources with the core Siemens clinical information system, including the recent addition of outpatient capabilities. The integration approach is an incremental, web-based “portal” technology using a commercial integration tool-set marketed by NetManage. This interface initially integrated information from medical record transcriptions, clinical laboratory, pharmacy, ambulatory care, inpatient care, radiology, patient management and accounting, and scheduling and referral.

The prototype web interface, called MD Webstation, won honorable mention for the 2003 Management Excellence Award from the California Association of Public Hospitals and Health Systems (CAPH). More recent developments include integrating information from gastroenterology, respiratory medicine, rehabilitation medicine, surgery, emergency department, and cardiology – all of which should be operational by June 2005. Developers hope to roll out a pilot Computerized Physician Order Entry system in stages for inpatient and outpatient care over the next year. Overall, the technical plan for the EHR system appears reasonable, but in a number of areas the current implementation appears limited. For example, the response time to demonstrate clinical information retrieval requests to

the Grand Jury was quite long – some involving 10-20 second delays which would be very frustrating for a hurried doctor or nurse. Other EHR systems require, and are able to achieve, response times of less than five seconds, so that the system is able to keep up with the decision processes of the user. Similarly, access to various parts of the computerized physician results reporting system at SCVHHS requires different authentication and patient identifier codes, which would also be frustrating for a user under time pressure. These kinds of fine tuning are essential to a successful rollout such as has been done at PAMF.

The SCVHHS approach is incremental in that the SCVHHS CIO and Associate Medical Director for Clinical Informatics feel themselves resource-limited, and can only pace progress consistent with current budget and staffing resources. The current budget for Information Services Department amounts to about 2% of the SCVHHS gross budget. During the Grand Jury's visit to SCVHHS Information Systems Department in October 2004, it was given a "Clinical Information Systems Strategic Plan" written by the Associate Medical Director for Clinical Informatics in SVCHHS ISD and dated April 2004. This appears to be an insightful, grass-roots draft plan for alternative technical architecture approaches, selection of relevant standards, and discussion of internal organizational issues such as departmental system autonomy, roles of care providers, what to do about inpatient versus ambulatory care EHR, and so on. Upon a return visit in January 2005, a draft mission and scope statement for a "Clinical Informatics Working Group" was presented, dated January 2005. When asked if SCVHHS ISD had a long-range plan for its work approved by senior management, the CIO's answer was negative, and he noted that he had never been asked for a long-range plan. When asked what they most needed to move forward, the answer was "an increase in expenditure to 3-5% of total budget". However, when asked what they would do if an increase to 3% happened right away, neither the CIO nor the Associate Medical Director was able to offer a substantive response.

In a meeting with the Executive Director of SCVHHS the following day, it was announced to the Grand Jury that the CIO had just been tasked with developing a long-range strategic plan for EHR. The SCVHHS Executive Director characterized this as a "virtual plan". Overall, it appears that reasonable technical work is being done in SCVHHS ISD. However, it appears that there is no senior management buy-in and commitment for the development and deployment of EHR systems as compared to that which is consistently seen in other community healthcare enterprises.

When asked about the possibility of choosing a vendor other than Siemens, should that become desirable for technical reasons, both the CIO and Executive Director expressed strong hesitation about approaching the BOS regarding such a change. A commitment to the current vendor appears to be based as much on political concerns as on technical choice. This may limit SCVHHS's ability to navigate its future path toward an effective EHR.

Custodial Health Services Electronic Health Records

In Santa Clara County, the responsibility for adult inmate healthcare rests with DOC and is split operationally between DOC, which provides detention facilities and security for incarcerated persons, and SCVHHS, which provides professional healthcare personnel,

drugs, and services for routine and emergency care to inmates. Similarly, the Probation Department, Social Services Agency, and SCVHHS share responsibility for juvenile and children's healthcare in detention/custodial facilities.

The Grand Jury also found work in progress toward separate EHRs within the medical operations managed by SCVHHS Custodial Healthcare at these detention and shelter facilities. A very clear need was heard from care providers at DOC facilities. For example, inmates are often moved between the physically separate Elmwood Facility and the Main Jail. Initial health screening associated with booking is performed at the Main Jail, even if the inmate will end up at Elmwood. The inmate infirmary is also at the Main Jail, so that, if an Elmwood inmate gets sick, the inmate may have to be transported to the Main Jail. Acute mental health care is available only at the Main Jail, and if an inmate requires still more specialized care they may have to be transported to VMC. Currently, all inmate medical records are manual, so time is often lost locating and retrieving an inmate's record so it can accompany the inmate to the new location. As part of a business process review and strategy plan done for Santa Clara County Adult Custody Health Services (CHS) in 2002 by Sierra Systems Group, Inc., it was noted that:

“Much of the service delivery and documentation is performed manually, impeding service delivery to inmates and increasing the costs in the provision of services. The goal of the business process-reengineering project is to determine ways to improve service delivery to inmates through the use of streamlined processes and utilization of information technology....”

By and large, this situation persists today – with the exception of a few islands of light such as the information system that supports Pharmacy Services at SCVHHS and DOC facilities. Routine daily inmate care is supported with paper records. During Grand Jury visits, file rack after file rack of paper medical records were observed at the correctional facilities. Data for utilization, cost, adherence to standards of care, and outcomes analyses are generated from manual records, and such analyses are very scarce because of the labor-intensive and tedious work required in doing retrospective studies on these manual records.

It must also be said that the need for change is recognized and is felt in a pressing way by DOC and by the inmate healthcare organization of SCVHHS. During visits, the Grand Jury was told by a DOC employee that “an electronic medical record (EMR) system for inmates is absolutely essential to track care of the transient inmate population.” It was further stated that, “An EMR system is just around the corner”. The Grand Jury must note here that the current SCVHHS CIO was totally unaware of this EHR effort associated with DOC facilities, even though the care there is provided by SCVHHS personnel.

Prior to the business-process review mentioned above (in FY 2000), the Associate Director for Adult Custody Health Services at SCVHHS approached the previous SCVHHS CIO for assistance with the specification and procurement of an inmate EHR system. This request was rebuffed and ignored, so the Associate Director of CHS turned instead to the County CIO and initiated an EHR project that was approved by the County Executive's Information Technology Executive Committee (ITEC) with funding of \$2.8 million. The Grand Jury has reviewed the resulting functional and detailed requirements specifications,

as well as the documentation for procurement done by Sierra Systems under contract, and was very impressed. No such specification document was found for any of the internal SCVHHS EHR development work.

The Grand Jury would like to recognize the initiative taken by the Associate Director for Adult Custody Health Services, despite a lack of response or interest from the previous SCVHHS CIO. A Request for Proposals (RFP) for this inmate EHR procurement was issued in late 2004 and interactions with potential vendors were in process at the time of the Grand Jury's inquiry.

From the Grand Jury's point of view, however, a significant problem continued unresolved – the procurement and deployment of an EHR is an extremely complex process, which must take into account all of the information inputs, outputs, and flows to support and coordinate patient care within the system. Since inmates are cared for both on-site at the correctional facilities and off-site in the clinics and care units of the VMC, it is imperative to have the EHR development and operation for the two sites coordinated – a move that was wholly rejected by the previous SCVHHS CIO.

Within a week of the January 2005 Grand Jury visits and interviews for this inquiry, the RFP for a "Jail Medical Information Management System" (JMIMS) went from a status of having been issued for vendor response, to being rescinded, to being reissued, and again to being rescinded. This chaotic situation with respect to the management of the DOC EHR system apparently resulted because the Grand Jury asked a question of the SCVHHS CIO during its October 2004 and January 2005 visits – "What do you know about the DOC JMIMS specification and procurement?" The immediate answer was "Nothing." in October. In January, the SCVHHS CIO said he had been trying unsuccessfully to meet with the Associate Director for CHS, and still did not recognize the JMIMS RFP documentation when shown it by the Grand Jury. The follow-up action by the SCVHHS CIO appears inconsistent and counterproductive, to say the least. The SCVHHS CIO advised his supervisor, the SCVHHS CFO, to insist that the County CIO immediately rescind the DOC RFP despite the accumulated two years of work to issue it. The ensuing flip-flop of management decisions came as a result of uncoordinated, unilateral actions by organizationally independent IT groups in County government. It would have been much more preferable to convene the relevant stakeholders to assess the status and consequences of alternative actions prior to issuing a single, well-considered order.

Equally disturbing, it appears that the SCVHHS CIO is still unaware of yet another EHR project initiated under the SCVHHS Associate Director for CHS and the Santa Clara County CIO – one for the Probation Department Juvenile Hall and the Social Services Agency Children's Shelter. This project has progressed to the point of near operational completion at the time of issuing this Grand Jury report. It is not clear to the Grand Jury how this system will be able to interface with its counterpart systems in other parts of the County healthcare enterprise or if any consideration has been given to such integration issues.

There appears to be almost no coordination of IT planning and implementation activities between the SCVHHS Information Services Department and the County CIO, much less with end-user stakeholders such as DOC, Probation Department, and Social Services Agency. In various interviews with County managers regarding how IT projects

are proposed, approved, funded, and managed, the Grand Jury learned that there are “islands” of independence from the County Executive’s ITEC oversight group – SCVHHS being one of them. When asked how often he meets with the County CIO, the SCVHHS CIO answered, “Not very often.”

EHR Leadership by SCVHHS Senior Management

After observing the apparent management disarray regarding IT planning and implementation activities, the Grand Jury met with the SCVHHS Executive Director and the CFO with the goal of determining:

- What the long-range commitment and plan was for an EHR;
- What resources were to be allocated to this project; and
- Why SCVHHS had not been playing a more visible and central leadership role in coordinating county EMR efforts.

In response to the first question, the meeting started with the announcement by the Executive Director that the CIO had just been tasked with developing a “virtual long-range strategic plan” for an SCVHHS EHR. Clearly no such strategic plan existed from the viewpoint of senior management, nor had one been thought necessary, despite the work done on an EHR since 1998 and the investment of \$25 million per year in SCVHHS ISD.

The Executive Director, noting that his only use of a computer was “to read the news,” stated unequivocally to the Grand Jury that he thought there “were no significant benefits to an EHR, and there have been no known successful implementations of EHRs locally or nationally.” Specifically, he referenced a well-publicized temporary rollback of a Computerized Physician Order Entry component of the EHR system at Cedars-Sinai Medical Center in Los Angeles in early 2003. When asked what he thought of the successful local EHR implementation work at El Camino Hospital, Palo Alto Medical Foundation, Kaiser Permanente, and the Veteran’s Administration Medical Center, he had no significant comments other than to question if those organizations were really implementing or had EHR systems. Finally, when asked why SCVHHS did not take a more aggressive leadership role in planning and coordinating EHR technologies for County healthcare activities and more broadly in the region, he said simply, “I am not interested and do not think it a useful way to spend my time.”

Conclusions

Numerous San Francisco Bay Area and regional healthcare systems have already successfully developed and deployed EHR systems to facilitate the management and integration of patient information. These systems are complex and costly, but substantial gains have been demonstrated in areas such as better and more consistent clinical decisions, improved patient safety, increased efficiencies, higher patient satisfaction, and reduced costs. Healthcare workers and administrators in many parts of County care facilities recognize that such technology is urgently needed, but the Grand Jury has found that there is a lack of commitment and leadership on the part of top management to spearhead and coordinate the overall planning and deployment of EHR systems.

The Grand Jury found a chaotic situation in the management of the conceptualization, planning, coordination, funding, and implementation of EHR technologies in various parts of the County's healthcare enterprises. This situation reflects a lack of knowledge and interest at the highest management levels. Until it is rectified, the County will be faced with a haphazard approach that is a recipe for long-term failure.

In fact, the County seems headed for the most inefficient, costly, and failure-prone approach possible by doing nothing to coordinate efforts and letting each local stakeholder and organization with an immediate need implement its own idiosyncratic system. The results of this approach are likely to include the inability to share information easily among systems, difficulty in extracting care process and outcomes statistics to support management decisions, inefficiencies and higher costs, having to re-implement parts of the system, and failure to optimize service improvements for patients.

The Grand Jury has made five Findings and six Recommendations:

Finding 1

Among the major health care providers in the County, Santa Clara Valley Health and Hospital System stands alone in not having top management commitment to move aggressively in implementing an integrated EHR system. The Executive Director of SCVHHS asserts that "there are no significant benefits to an EHR and there have been no known successful implementations of EHRs locally or nationally." To the contrary, the Grand Jury is aware of successful EHR implementations almost everywhere one looks locally, nationally, and internationally and there are many studies that have documented successful implementations and benefits of EHRs. The Grand Jury believes that by taking a more aggressive approach, the patients who use SCVHHS each year (632,000 outpatients and 117,000 inpatients) will benefit because there will be fewer medical errors, more efficient healthcare, and better management tools to ensure long-range savings to County taxpayers.

Recommendation 1

The Santa Clara County Board of Supervisors should direct the Executive Director of SCVHHS and his staff to visit local healthcare organizations that are implementing EHRs and to review the current medical literature that clearly documents the value of EHRs. Decisions about implementing an EHR for SCVHHS facilities should be based on up-to-date, objective information. An objective, outside advisory group, drawn from local experts at Palo Alto Medical Foundation, Sutter Healthcare, Kaiser Permanente, and El Camino Hospital, and including other outside subject matter experts might be effective in collecting and assessing relevant information to help guide SCVHHS decisions about an EHR.

Finding 2

The County healthcare system is in an excellent position to take a leadership role in working toward the development of interoperable EHR systems among County and regional providers. The Executive Director of SCVHHS has stated an explicit unwillingness and/or an inability to take on such a leadership role.

Recommendation 2

If the Executive Director of SCVHHS is unwilling or unable to bring the County into a leadership role in the region, the Santa Clara County Board of Supervisors should direct that this role be delegated to an individual who will have the authority and resources needed to undertake such a responsibility, including authority over SCVHHS EHR efforts.

Finding 3

Despite the reservations of the Executive Director of SCVHHS, a number of efforts are currently underway within SCVHHS, DOC, Probation Department, and Social Services Agency to implement partial EHR systems, several without the knowledge or interest of key members of the senior management team at SCVHHS. The management of these efforts is chaotic – the projects are largely uncoordinated and the Grand Jury could find no documented long-range vision or integrated plan for these projects. The Grand Jury believes this managerial neglect is a recipe for long-term failure – in fact the County seems headed for one of the most inefficient, costly, and failure-prone approaches possible by doing nothing to coordinate efforts and letting each local stakeholder and organization with an immediate need implement their own idiosyncratic system.

Recommendation 3A

The Santa Clara County Board of Supervisors should direct the County Executive to ensure that the SCVHHS Executive Director, the County CIO, and other relevant County leadership form a comprehensive task force to define, plan, coordinate, implement, and fund an interoperating set of EHR systems that encompass the needs of all of the SCVHHS patient population. The scope of this planning should include inpatient care, outpatient care, inmate care, mental health care, drug and alcohol care, and public health. The taskforce should include a wide range of subject matter expert consultants from both inside and outside SCVHHS to ensure that the system(s) meet end user needs. The leadership group must have backing from the BOS affirming that the program is critical in the short- and long-term for the well-being of patients and for the more effective management of the SCVHHS healthcare enterprise.

Recommendation 3B

The Santa Clara County Board of Supervisors should direct the task force identified in Recommendation 3a to develop an appropriate phased plan and “fast track” it through development and implementation. The urgent healthcare needs of groups like adult inmates must be factored into the phasing of implementation plans. In the future, the task force must work effectively and proactively to understand the business needs of the parts of the healthcare enterprise and to work cooperatively to meet those needs based on negotiated priorities.

Finding 4

The current “incremental” approach being taken by the SCVHHS CIO to developing SCVHHS EHR technology is ineffective, costly, and slow. This approach appears to be the result of limited management support, limited resources, and correspondingly limited goals of the SCVHHS CIO. Other local healthcare enterprises, such as Palo Alto Medical Foundation, Sutter Healthcare, El Camino Hospital, and Kaiser Permanente, are moving energetically and successfully to implement fully re-engineered EHR systems based on modern vendor technologies.

Recommendation 4

The Santa Clara County Board of Supervisors should direct the SCVHHS CIO, in conjunction with the enterprise EHR task force outlined in Recommendation 3a, to revisit current EHR design plans and reconfirm that they are rooted in systems, computer, and communications technologies appropriate for today, not the 1990s. Top management, including the BOS, should not require as a design condition of this effort that the vendor choices made ten years ago be maintained.

Finding 5

Despite its overall criticism directed toward SCVHHS senior management, the Grand Jury would like to acknowledge that there are several noteworthy efforts at developing EHR components underway at SCVHHS. The systems implemented by Pharmacy Services of SCVHHS are one such example. Another is the planning for an inmate healthcare record system under the Associate Director for Custodial Healthcare Services and County CIO. Finally, in spite of limitations noted in this report, the partial EHR implemented for SCVHHS inpatient and outpatient care incorporates a number of good ideas and has made progress despite limited management support.

Recommendation 5

The Santa Clara County Board of Supervisors should direct the task force identified in Recommendation 3a to take inventory of SCVHHS EHR activities as a central part of its mission and identify existing work that merits preservation and integration into longer-range plans.

PASSED and ADOPTED by the Santa Clara County Civil Grand Jury on this 12th day of May 2005.

Michael A. Smith
Foreperson

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Interviews

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2. Chief Medical Information Officer, Palo Alto Medical Foundation/Sutter Health, 10 Dec. 2004.
3. County Executive, Santa Clara County, 25 Oct. 2004.
4. Chief Deputy County Executive, Santa Clara County, 25 Oct. 2004.
5. Chief, Department of Correction, 19 Nov. 2004.
6. Executive Director, SCVHHS, 1 Feb. 2005 and 28 March 2005.
7. Chief Financial Officer, SCVHHS, 1 Feb. 2005 and 28 March 2005
8. Associate Director for Adult Custody Health Services, SCVHHS, 1 Feb. 2005, 3 Feb. 2005, and 28 March 2005.
9. Director, Pharmacy Services, SCVHHS, 11 Feb. 2005.
10. Director, Information Systems, SCVHHS, 31 Jan. 2005.

Interviews (cont'd.)

11. Associate Medical Director, Clinical Informatics, SCVHHS, 12 Oct. 2004 and 31 Jan. 2005.
12. Chief Information Officer, Santa Clara County, 7 Feb. 2005.

Visits

1. Elmwood Facility, 9 Aug. 2004.
2. Main Jail, 23 Aug. 2004.
3. Juvenile Hall, 20 Sept. 2004.
4. Valley Medical Center, 2 Oct. 2004.